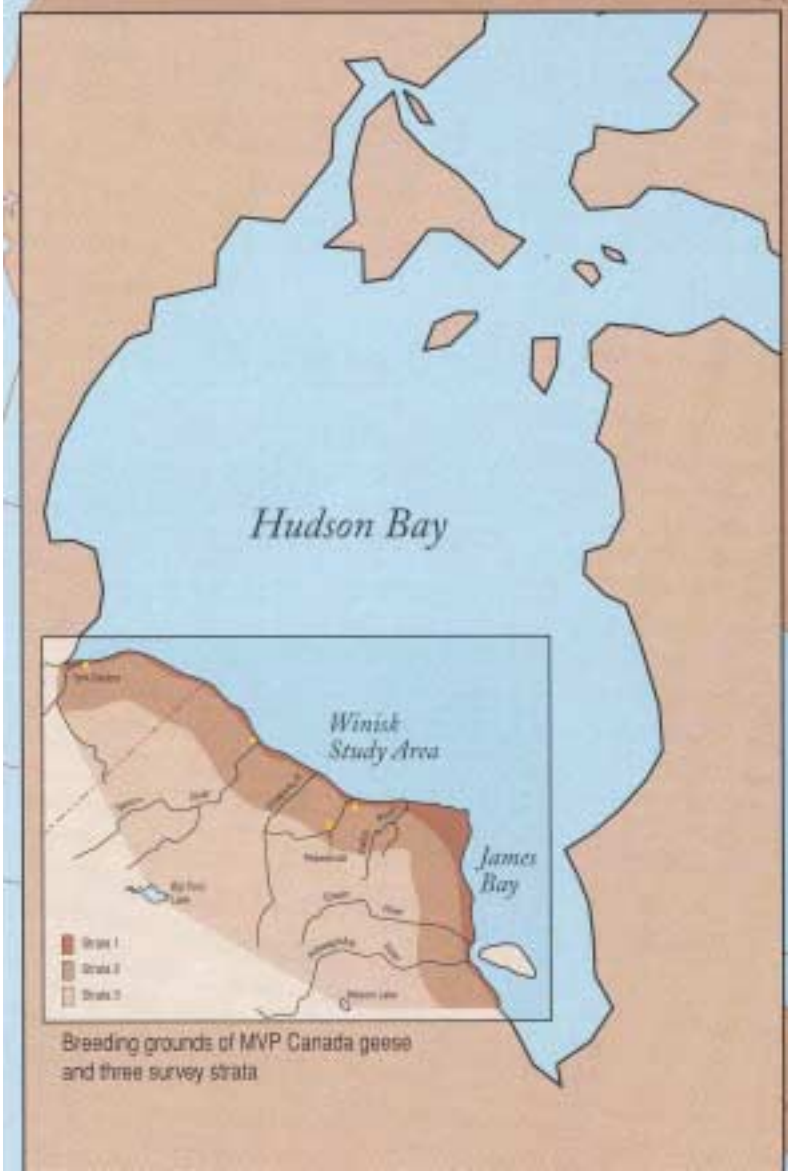
Managing the Mississippi Valley Population of Canada Geese 1997–2002



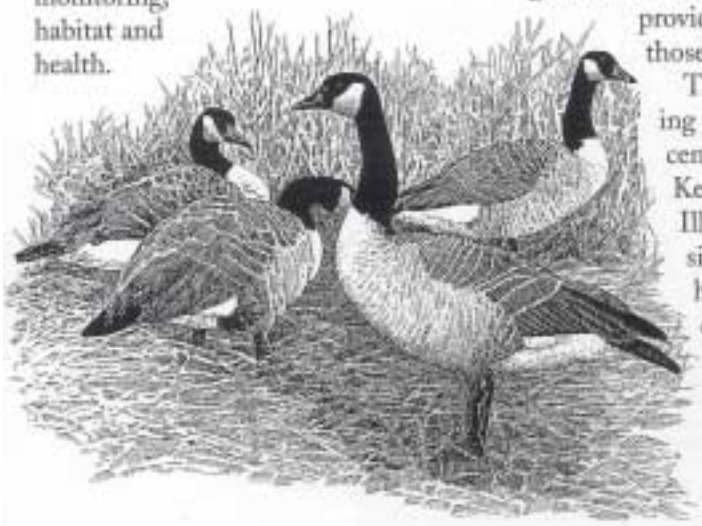
Breeding grounds of MVP Canada geese and three survey strata

The Canada goose *(Branta canadensis)* is one of North America's most popular waterfowl. Their range extends through Canada and the contiguous United States and parts of Mexico. The Canada goose species has evolved into at least 12 distinct populations in response to different landscapes they inhabit.

Canada goose (Branta canadensis)

One of the interior populations of Canada geese is the Mississippi Valley Population (MVP). This population breeds primarily on the lowlands of northwest James Bay and Hudson Bay in Ontario and the Hudson Bay lowlands of northeastern Manitoba. They migrate down the Mississippi Flyway and winter primarily in southern Illinois and Indiana and northwestern Kentucky and Tennessee. On their migration, they stop at farmlands and wetlands in southern Ontario, Wisconsin, northern Illinois, Indiana and Michigan. The conservation of the MVP is a shared responsibility of Canada, the United States, native peoples in both countries and especially the states and provinces they breed, migrate through, and winter. This document describes the *Management Plan for the Mississippi Valley Population of Canada Geese, 1997–2002* and the information gathered from studying this population.

In 1985, the Mississippi Flyway Council's MVP Committee was given the responsibility of making all recommendations for managing MVP Canada geese, including regulations. This committee consisted of representatives from Illinois, Indiana, Kentucky, Michigan, Tennessee, Wisconsin, Great Lakes Indian Fish and Wildlife Commission and Ontario. The MVP Committee established the following management goal and specific management objectives for population size, harvest, monitoring, habitat and health.



Typical lowland habitat where MVP Canada geese nest

Management Goal

To protect and preserve the abundance and health of the Mississippi Valley Population of Canada geese, as well as, providing maximum use and enjoyment opportunity throughout the MVP range

With any high profile species such as the Canada goose, there are always economic and social issues that must be considered. MVP Canada geese have long had a considerable positive economic impact around fall and winter concentration areas. It is estimated that over 88,000 visitors come to Horicon, Wisconsin, southern Illinois, and western Kentucky each year specifically to view large concentrations of Canada geese. This equates to over $5.4 million generated from goose watching and provides a substantial boost to those rural economies.

The value of goose hunting to the economies of east central Wisconsin, western Kentucky, and southern Illinois increased with the simultaneous rise in MVP harvest quotas. Hunting contributes approximately $17 million dollars annually to these economies.

On the other hand, increasing numbers of MVP geese have also had negative economic impacts on farmers, especially in Wisconsin. Goose related crop damage claims from 1990–98 ranged from $7,924 to $27,500. Despite the apparent decline in the number of goose damage complaints and claims, goose damage continues to be a major concern in Wisconsin. The decline in recent years is probably a result of the excellent abatement efforts by United States Department of Agriculture–Wildlife Services, geese becoming more spread out and manipulation of hunting seasons to increase hunting pressure during periods of highest damage.

Population Objective

To maintain a spring population of 900,000 MVP Canada geese

The spring population estimate is determined by aerial surveys conducted while MVP geese are nesting. Canada geese arrive on the breeding grounds between April 9–21 each year. Egg laying occurs between May 10–19 on the breeding range and most eggs hatch between June 10–19. Nest success (i.e., at least one egg successfully hatching from a nest) ranges from 23–83% annually.

Annual gosling production (the number of new individuals entering the population each year) is estimated through the calculation below:

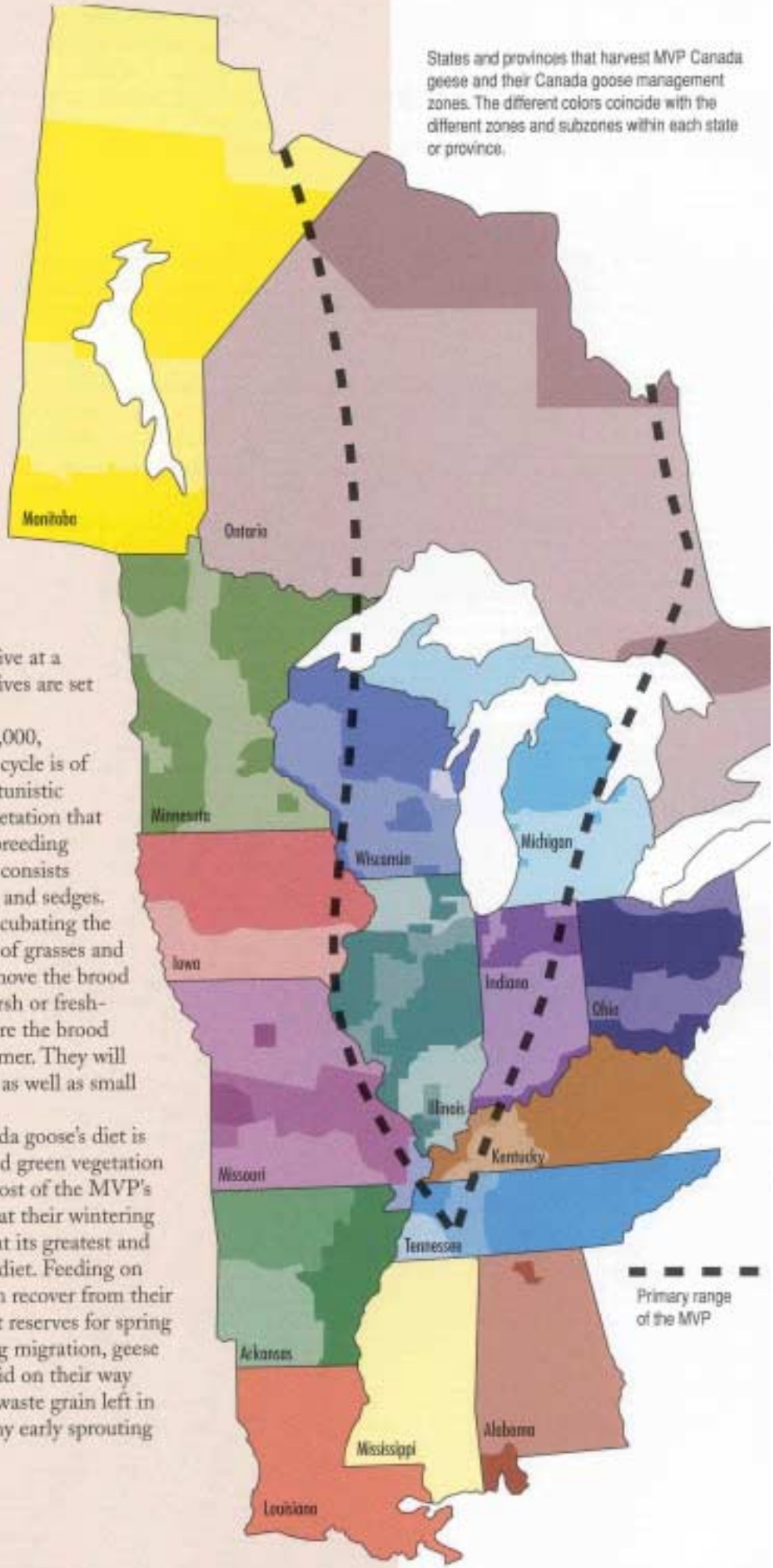
Annual Gosling Production = (number of nests) x (average nest success) x (average number of goslings leaving nest) x (gosling survival to flight stage)

The annual production is then added to the spring population to arrive at a Fall Flight Forecast (FFF). Harvest objectives are set based on the FFF.

To maintain a spring population of 900,000, availability of food throughout the annual cycle is of great importance. Canada geese are opportunistic feeders and they will feed on palatable vegetation that is readily available. During spring on the breeding grounds of the coastal lowlands, their diet consists primarily of bulbs and rhizomes of grasses and sedges. Once the eggs are laid and the birds are incubating the eggs, they feed mostly on the fresh shoots of grasses and sedges. After the eggs hatch, the parents move the brood to nearby water, which is usually a salt marsh or fresh-water sedge-grass community. This is where the brood and their parents spend most of their summer. They will feed on vegetation that is readily available as well as small insects that are living in the marshes.

During fall and winter, the MVP Canada goose's diet is mainly crop grains (corn and soybeans) and green vegetation (alfalfa, clover, and winter wheat) along most of the MVP's migration route. When they finally arrive at their wintering grounds, their grain consumption will be at its greatest and will comprise approximately 85% of their diet. Feeding on high-energy foods such as grain help them recover from their long migration as well as build up their fat reserves for spring migration back to Canada. On their spring migration, geese will stop at many of the same areas they did on their way south the previous fall. They will feed on waste grain left in the field as well as moist soil plants and any early sprouting green vegetation.

States and provinces that harvest MVP Canada geese and their Canada goose management zones. The different colors coincide with the different zones and subzones within each state or province.



Harvest Objective

To harvest MVP geese with the intent of managing for a spring population goal of 900,000 birds

When a fall flight forecast (FFF) equals or exceeds 1.2 million, the retrieved and unretrieved harvest objective will be based on the difference between the FFF and the spring population objective. When the FFF is less than 1.2 million, conservative harvest quotas will be set so the spring population will recover to the goal over a specific period of time.

Control of harvest in each major MVP state/province is essential to the harvest management strategy. After the allowable harvest is determined, each state and province, which the MVP Canada geese migrate through, is allocated a certain number of birds. Each state then distributes its portion of the harvest by Canada goose management zones. Individual states and provinces establish hunting zones based primarily on hunter and goose density.

MVP Harvest Allocation

The estimated retrieved and unretrieved harvest from 1988-98 has ranged from a low of 183,300 to a high of 369,800. Hunting is undoubtedly the primary tool used to control Canada goose numbers. Harvest is closely monitored to insure that it remains within the annual quota. The US Fish and Wildlife Service (FWS) annually estimates the harvest. Individual states and provinces monitor the harvest during the season using different methods such as phone-in systems and monitoring hunting club harvest and will close the goose season early if their quota is reached.

Population Monitoring Objective

Continued use of the annual spring population survey will be the principal population monitoring technique

Prior to 1993, the MVP population was estimated by surveys conducted on the wintering areas. After 1992, winter surveys were given less importance because the increasing number of giant Canada geese wintering on MVP areas biased results and the 2 races are not distinguishable from a distance.

The MVP spring population is now monitored annually by aerial survey of the breeding ground. The breeding ground is divided into 3 strata (see front cover for strata) based on nesting density. Surveys are conducted by strata to improve the estimate of the spring population.

Along with the spring population survey, approximately 1,500 MVP geese are neck collared and 5,000 are leg banded every summer. Recovery of these collars and leg bands aid in population estimates and determining where MVP geese are harvested.

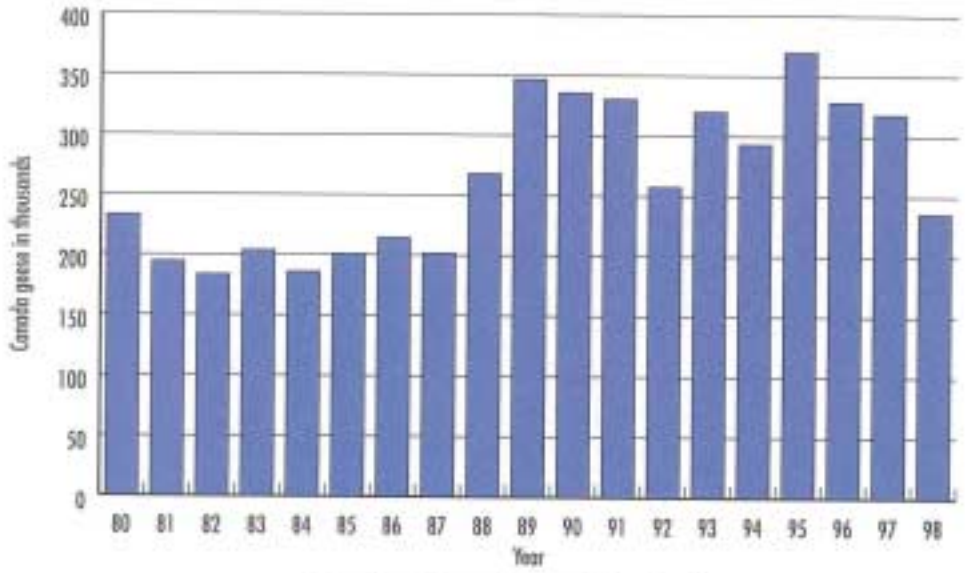
From 1989-99 the spring population averaged 762,700 birds, with a low of 444,000 and a high of 969,500 with no clear trend over that period.

Habitat Management Objective

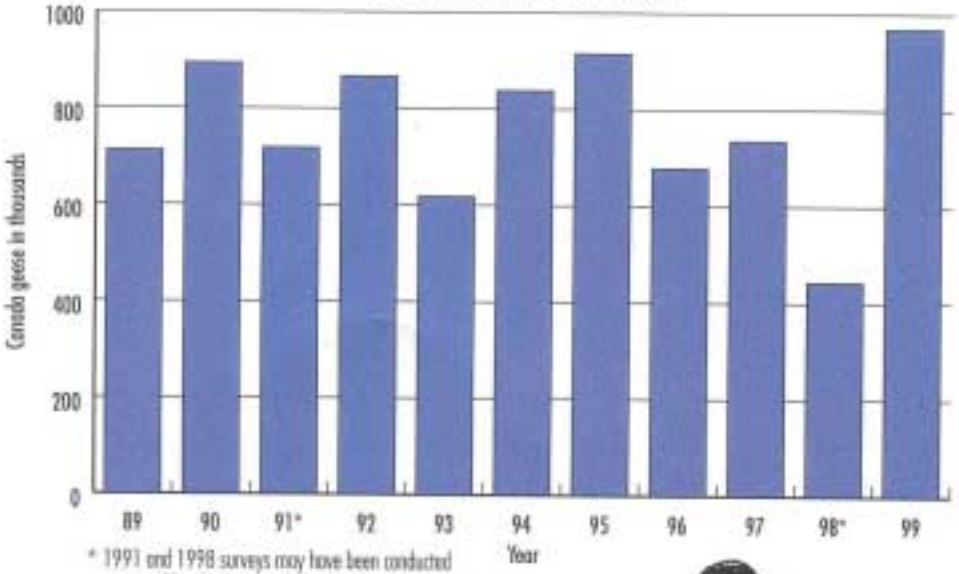
To manage and develop Canada goose habitat throughout the MVP range consistent with the MVP population objective

In order to accomplish this objective, 3 questions of concern needed to be considered. All the questions are related to the population objective of 900,000 birds.

Retrieved and Unretrieved Harvest of Mississippi Valley Population Geese



Canada Geese Counted in Spring
(thousands) from 1989–1999



* 1993 and 1998 surveys may have been conducted at time of hatch which would have resulted in a substantial underestimation of the population.

Question 1

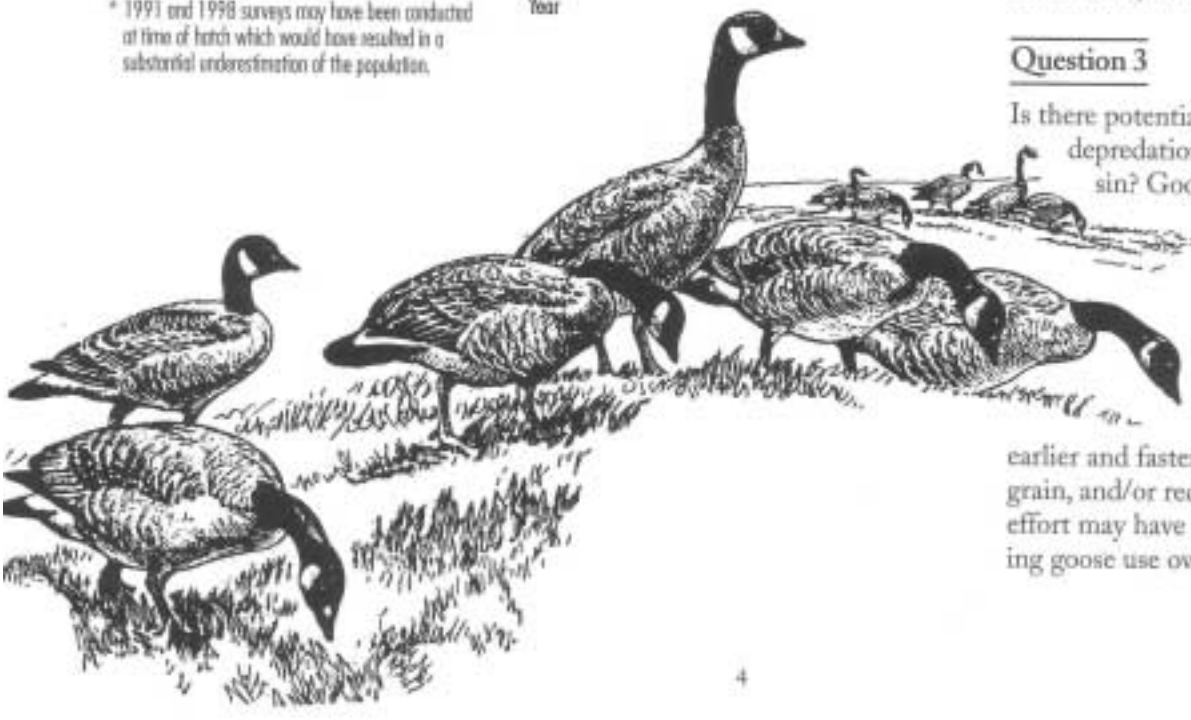
Can the breeding range support this population without overcrowding, which could result in lower annual production (i.e., density-dependence)? Studies have provided no evidence to suggest that the population is affected by density-dependence on the breeding grounds. Reproductive parameters such as clutch size, nest success, goslings produced/successful nest, and gosling survival from hatch to fledging did not appear to decline with population increases.

Question 2

Can the primary wintering areas sustain (in adequate physical condition) the increased goose use associated with the population size? A number of studies suggest that increasing goose use at Horseshoe Lake, Union County and Southern Illinois refuges could lead to serious food limitation problems unless changes in crop management could increase availability of foods. However, alternative crop management could provide food resources to support a post-hunting MVP of over 900,000 birds. Moreover, MVP geese have tended to spend more of the fall and early winter north of traditional (southern Illinois) wintering areas.

Question 3

Is there potential for increased crop depredation in eastcentral Wisconsin? Goose crop depredation complaints have not increased in proportion to the increased MVP size. Reasons for this are not clear, but a more effective damage abatement program, earlier and faster means of harvesting grain, and/or recent increases in hunter effort may have dispersed birds, spreading goose use over a wider area. Poten-



tial crop depredation remains a concern among Wisconsin farmers due to high densities of geese.

Disease Management Objective

To minimize the impact of disease on the MVP

National and regional disease contingency plans have been established to provide guidance for managers faced with disease situations. The plans identify responsibilities and establish procedures for preventing disease and responding to outbreaks; the FWS keeps these plans current.

Areas of high Canada goose numbers are monitored closely because these areas have the greatest chance of disease outbreak. Dead and dying birds are collected and sent to a diagnostic facility immediately so that action can be taken to minimize losses.

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Future Research

Research on the biology and management of MVP Canada geese is a continuous process. Population and harvest objectives and methods in this plan will require additional information. All of the high priority issues deal with improving the methods used to attain the 5 main objectives.

Edited by Thomas J. Schwartz and Jon R. Bergquist, CWB

Prepared by the Mississippi Flyway Council's MVP Committee, and its MVP Technical Section Commitee

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Future Research

High Priority	Medium Priority	Low Priority
Refine surveys and analyses	Re-evaluate the effects of spring phenology on reproduction	Use neck collar sightings and band recoveries to determine nesting range
Habitat monitoring on breeding areas	Re-evaluate the current allocation among states and provinces	Evaluate the effects of hunting on annual survival
Improve methods to monitor harvest	Investigate migration timing and distribution of MVP geese from September through April	Investigate non-breeding MVP geese more closely
Re-evaluate the Fall Flight Forecast model	Study interaction between molt migrants and MVP breeding geese	Encourage a survey of Native harvest of MVP geese
Conduct additional band reporting and unretrieved hunting loss studies		